**OUTREACH MEETING DISCUSSION SUMMARY**
**MEETING DATE DECEMBER 3, 2010**

County Staff in attendance: Bryon Mitchell, Manager, Office of Life Safety
Sharon Goetz, Manager of Permitting Services
Larry Willard, Chief Plumbing Inspector
David Doyle, Chief Building Inspector
James R. (Bob) Ensor, Chief Electrical Inspector
John Picco, Chief, Plan Review
Lisa Orr, Program Coordinator, Office of Environmental Sustainability
Emily Roche, Administrative Specialist

Agenda items discussed:

- Green Building Update
  - Lisa Orr, Program Coordinator for the Frederick County Office of Environmental Sustainability, presented several EXCITING informative trainings and events that are occurring locally.
  - Building Energy Codes and Standard Development Update:
    - 2012 International Energy Code (IECC): Residential and Commercial Code 30% more stringent than 2006 IECC for residential buildings.
    - 2010 ASHRAE Standard 90.1: more than 20% more energy efficient than 901.-2004
    - International Green Conservation Code (IGCC): the final action will be made in October 2011, with a published date in January 2012.
  - Free downloads of Green Building Codes are available at http://www.iccsafe.org/cs/IGCC/Pages/default.aspx?r=IGCC
  - Office of Environmental Sustainability will also be launching "The Green Homes Challenge". This challenge will include Power Saver Certifications, Power Aware Parties, as well as introductions to other available programs. In December, pilot programs will be rolled out; including the Powerware Party. Powerware Party is similar to a Tupperware Party, where a group of people get together and become "power-aware" by a Green Homes Challenge representative. In January, the "Green Homes Challenge" will release the first challenge- "Be a Power Saver". There are many incentives involved- including- saving money, conserving energy, earning recognition for your efforts, and more!
  - Stay tuned for more Challenges.

- Certificates of Occupancy procedure change for permits within Municipalities
  - All Single Family Dwelling and Non-Residential Certificates of Occupancies for locations within municipalities will now be emailed directly to the municipality. No

more courier pick-up will be required. Applicants will continue to pick up the Certificates of Occupancy from the municipality.

- Building Permit field placard gets a facelift
  - The Placard will be getting a new look.
  - Since 2004, the placard has remained unchanged.
  - The updated placard will include more information regarding the permit. A larger Permit Number, the Frederick County Seal, and the permit Expiration Date are just a few of the changes to expect. When a Permit is extended- a new placard will be issued stating the NEW expiration date.
  - The new format will be seen on ALL Building, Fire and Grading Permits.

- Permit Status Inquiry website link has changed
  - The Dynamic Portal has been relocated to the County server. It is still owned and operated by an outside source; however because the server has changed if the link to the Permit Inquiry screen has been saved in your favorites- you will need to resave the Link. To resave the link follow the steps below:
    - Go to www.FrederickCountyMd.gov/permit
    - Check Permit Status
    - Permit Inquiry- Current Permits
    - Save to Favorites

- Soliciting input regarding both the Permits and Inspections general website and the Permit Status Inquiry website
  - We recognize that the Permit Inquiry website needs improvement so that the applicants can better understand their permit status and review comments. We are requesting feedback from the users of the Permit Status Inquiry website so that we may contact the outside source to get a quote on making the necessary changes to make this site more "user friendly".
  - Please email Sharon Goetz at: SGoetz@FrederickCountyMD.gov with your suggestions for improving this service.

- Open discussion of other topics
  - Mr. Steve Seawright, 2011 President of the Frederick County Builders Assoc., is concerned about contractors and homeowners in Frederick County not being updated on the Current Codes in effect. Staff responded that the Plan Review Technician could attach to the approved set of plans being sent to the applicant, a list of the Current Codes and a list of the most common reasons that inspections fail.
  - At this point, Frederick County Inspectors do not inspect Mechanical work. Ultimately, someone will be doing this inspection. This topic will be revisited at future Outreach meetings.

- A Contractor mentioned having problems with his low voltage contractor calling in his inspections. He was curious about having the inspector look at the low voltage when the high voltage electrical was being inspected. Bob Ensor (Chief Electrical Inspector) responded that the Inspectors *do* try to look at both, if they have time. However, the Inspectors cannot fail an inspection that was not called in. There was discussion about why the low voltage inspection is important anyway. Bob explained that the installation the low- voltage contractor does could potentially damage the high voltage work- therefore, it becomes a safety issue. The Inspectors encounter this during routine inspections quite often.
- Bob Ensor stated that it would be beneficial to both the Contractors and Inspectors if all of the trade permits were posted with the building permit. This would verify that all permits have been obtained, make it easier for the Inspector to identify who did which work, and access computerized records while on site, etc.
- Mr. Seawright brought up the problems caused when a check is not made out to the exact amount for payment of a permit. Because the Treasurer's Office cannot currently accept payment for an amount other than the amount owed, the payment cannot be accepted, causing delays in the processing of the application. An application cannot be processed without payment made. Another check has to be requested back at the Contractor's office, and another trip made into the Permit's office, which is very inconvenient. Staff said they would revisit the option of keeping an "account" that overpayments could be put into like an escrow account.
- Future Outreach Meeting topics could include:
    - More in-depth discussions about Inspections/Violations
    - Lisa Orr presenting her findings related to Affordable Housing and "Green Building"
- Beginning in 2011, Permitting Outreach Meetings will be held <u>quarterly.</u>

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Please note: This ends the published discussion summary, which may not include all discussion that occurred. It is not intended to be actual minutes of the meeting.

outreach meeting discussion summary December 2010/emr

PERMITTING AND DEVELOPMENT REVIEW DIVISION
FREDERICK COUNTY, MARYLAND
*Department of Permits and Inspections*
30 North Market Street • Frederick, Maryland 21701
Phone (301) 600-2313 • Fax (301) 600-2309

# PERMITTING OUTREACH MEETING

**NUMBER 30**
**December 3, 2010 @ 9:00am**
**DPDR Meeting Room, Lower Level**
**30 North Market Street**

AGENDA

I. Introductions

II. Green Building Update – Lisa Orr, Frederick County Office of Environmental Sustainability

III. Certificates of Occupancy procedure change for permits within Municipalities

IV. Building Permit field placard gets a facelift

V. Permit Status Inquiry website link has changed

VI. Soliciting input regarding both the Permits and Inspections general website and the Permit Status Inquiry website

VII. Open discussion of other topics

To propose topics of discussion for future Permitting Outreach Meetings, contact Sharon Goetz at SGoetz@FrederickCountyMD.gov.

**MARK YOUR CALENDAR NOW**
**Meeting Dates for 2011:**
**February 4**
**May 6**
**August 12**
**November 4**
All Permitting Outreach meetings begin at 9:00a.m.

**NASEO (National Assoc. of State Energy Officials)**
**November Webinar on:**
**Building Energy Codes and Standards Development Update**

- 2012 International Energy Conservation Code
  - Residential and Commercial Code 30% more stringent than 2006 IECC for residential Buildings
- 2010 ASHRAE Standard 90.1
  - More than 20% more energy efficient thatn 901.-2004
- International Green Conservation Code (Final action October 2011; Published approx. January 2012)

Presentation Slides
http://www.naseo.org/events/webinars/2010-11-22/Building_Energy_Codes_and_Standards_Development_Update-2010-11-22.pdf

**Green Building Codes**
http://www.iccsafe.org/cs/IGCC/Pages/default.aspx?r=IGCC
Free downloads of

- International Energy Conservation Code
- International Green Construction Code

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# CONTACT LIST OF REVIEW AGENCIES FOR NON-RESIDENTIAL BUILDING PERMIT APPLICATIONS

*Please note that all reviews listed may not be applicable to your application; this list is all possible reviews. Please check your application status online at www.frederickcountymd.gov/permit.*

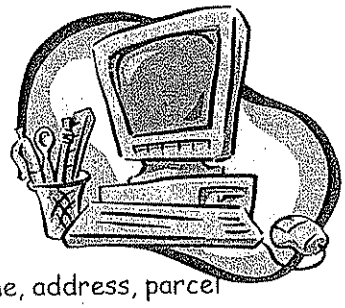
| Review Description | Department | Contact Person | Phone/Email |
|---|---|---|---|
| Planning & Zoning Review | Development Review/DPDR | Justin Horman Zoning, Site, Use, Setbacks, Soils | 301-600-1143 JHorman1@FrederickCountyMD.gov |
| Capacity Review | DUSWM/Div of Util and Solid Waste Finc | Terry May Plans, Fixture units, fees | 301-600-2957 TMay@FrederickCountyMD.gov |
| Capacity Review | DUSWM/Div of Util and Solid Waste Finc | Ken Carter Industrial Waste, Grease traps | 301-600-2511 KCarter@FrederickCountyMD.gov |
| PWDR Review | Development Review/DPDR | Vijay Kapoor Engineering Review, site | 301-600-1560 VKapoor@FrederickCountyMD.gov |
| Grading Review | ECS Review/DPDR (Environmental Compliance Section) | Rhonda Greenholtz Guarantees | 301-600-1132 RGreenholtz@FrederickCountyMD.gov |
| State Hwy Review | State Highway | Scott Newill SHA entrance permits | 410-545-5606 snewill@sha.state.md.us |
| State Sign Review | State Highway | Steve Thomas Sign permits | 301-624-8122 SThomas3@sha.state.md.us |
| DOLS Review | Department of Life Safety/DPDR Life Safety Code | Richard Ridgell Review of Building plans | 301-600-1643 RRidgell@FrederickCountyMD.gov |
| Plan Review | Building Plan Review/DPDR Building Code | John Picco Review of Building plans | 301-600-1083 JPicco@FrederickCountyMD.gov |
| Health Review | Environmental Health Review | Karen Amoss Well & Septic | 301-600-1726 KAmoss@FrederickCountyMD.gov |
| Health Food Review | Health Food Review | Karen Amoss Food service equipment review | 301-600-1726 KAmoss@FrederickCountyMD.gov |

*Contacts for Reviews as of 10/25/10*

# FREDERICK COUNTY MARYLAND
# WEBSITE INFORMATION SHEET

The Permits & Inspections web site has information on the following types of permits:
BUILDING PLUMBING ELECTRICAL DRIVEWAY
Also available are: Fee schedules, Codes In Effect, Inspection Procedures, Walk Thru Permits Process, License Applications, Links to various State Agencies and more.

**For information:**
Go to WWW.FREDERICKCOUNTYMD.GOV/PERMIT
Along left side of screen click on information that you are interested in



**To check on the status of a Permit:**
Go to WWW.FREDERICKCOUNTYMD.GOV/PERMIT
Scroll down to PERMIT INQUIRY
Click on CURRENT PERMITS
Create a Login User Name and Password or click on Anonymous
View permit application information by application number, applicant name, address, parcel number or license number

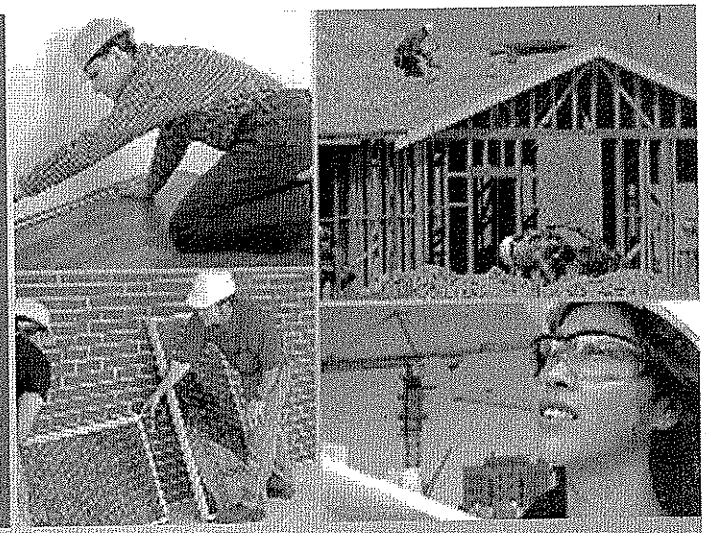
OR

Click on LEGACY PERMITS
Enter any information you have and click FIND

NASEO National Association of State Energy Officials

ENERGY'S WASHINGTON VOICE

*Transforming America's Energy Future*



# Building Energy Codes and Standards Development Update

Pacific Northwest NATIONAL LABORATORY

Proudly Operated by Battelle Since 1965

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

**November 22, 2010**
**The Internet**

ICC INTERNATIONAL CODE COUNCIL

ASHRAE

# Agenda

1:00 pm Introduction and Overview

1:05 pm 2012 IECC

1:30 pm ASHRAE/IESNA 90.1-2010

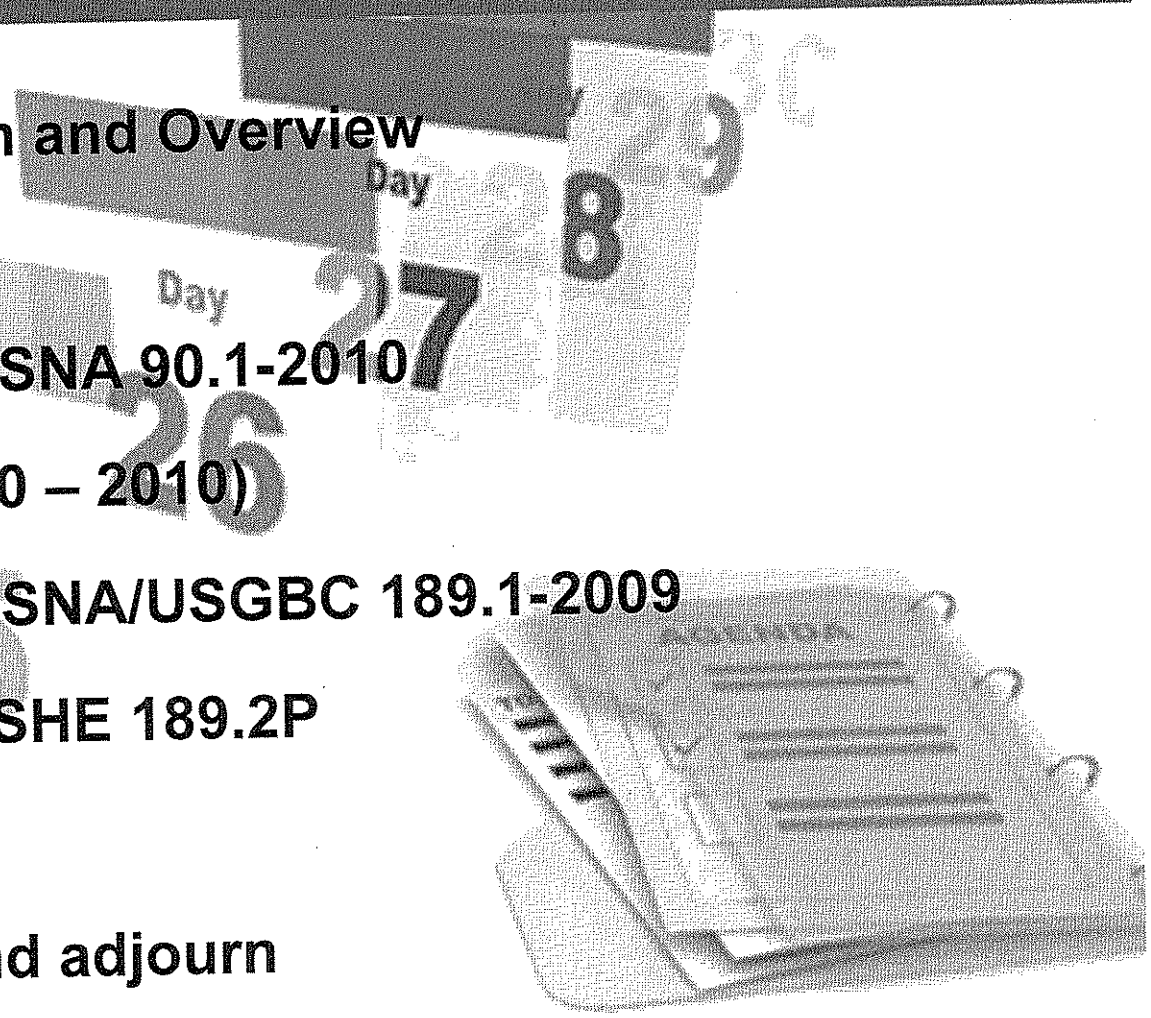
1:50 pm IgCC (PV 2.0 – 2010)

2:00 pm ASHRAE/IESNA/USGBC 189.1-2009

2:10 pm ASHRAE/ASHE 189.2P

2:15 pm Q/A

2:25 pm Wrap up and adjourn

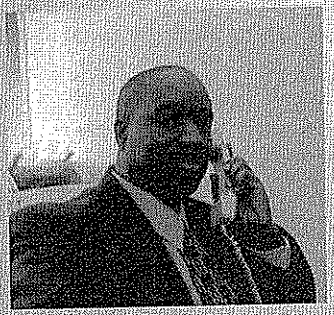


# Webinar Purpose/Outcome

**Purpose**: to provide information on recent initiatives in national model codes and standards that impact the design and construction of buildings.

**Expected Outcome**: an increased knowledge of current status and what is expected to happen in 2011 so you can plan for the future.

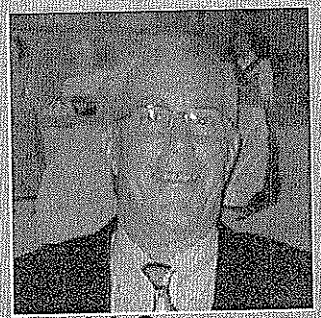
# The Speakers



**Ron Majette,**
DOE

**David Karmol,**
ICC

**Steve Skalko,**
ASHRAE

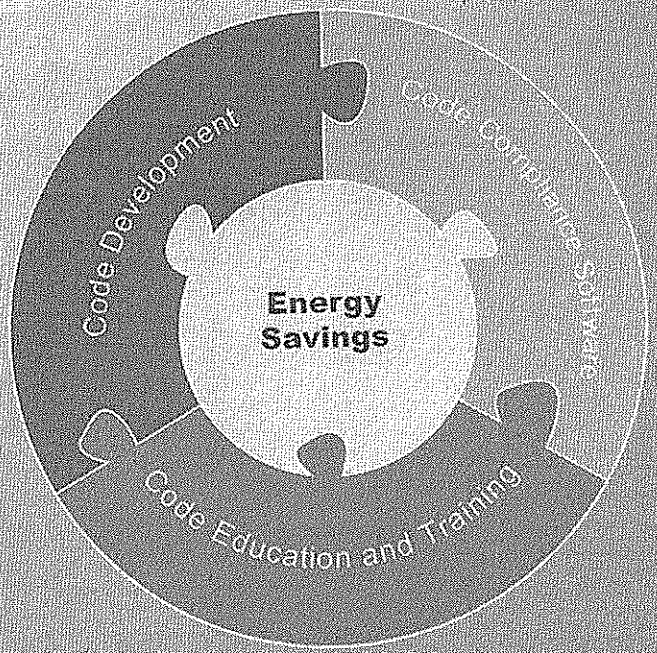


**David Conover,**
PNNL

**Kate Marks,**
NASEO

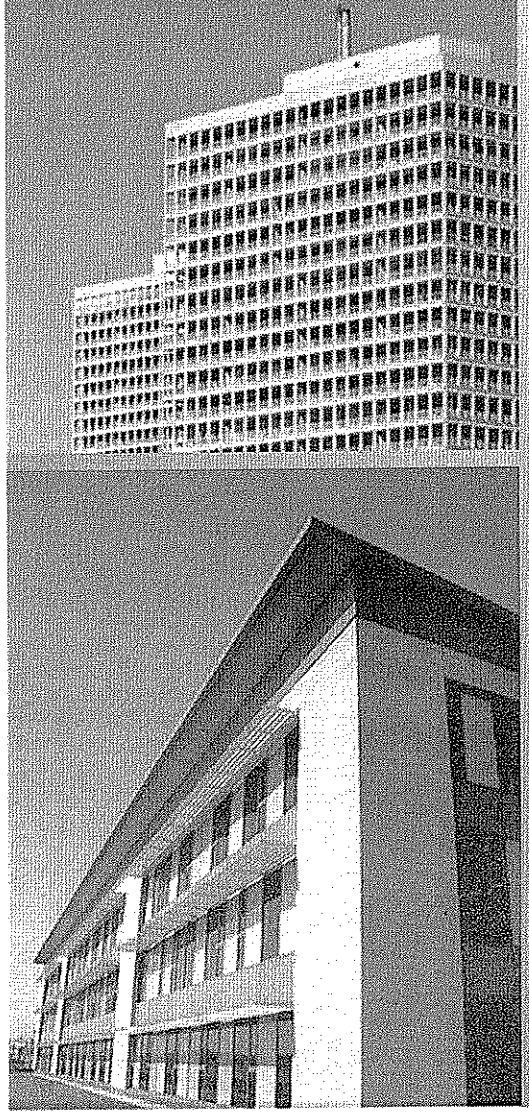
# Legislative Direction to DOE

- Support the upgrading of the IECC and Standard 90.1 model building energy codes (ECPA 307).
  - Recommend changes.
  - Seek adoption of all technologically feasible and economically justified energy efficiency measures.
  - Participate in process for review and modification of model codes.
- Determine whether the upgraded model codes will improve energy efficiency in buildings (ECPA 304).
- Provide financial and technical assistance to States to upgrade, implement, and enforce State energy codes (ECPA 304).




*BECP elements* work together *synergistically to achieve* energy savings.

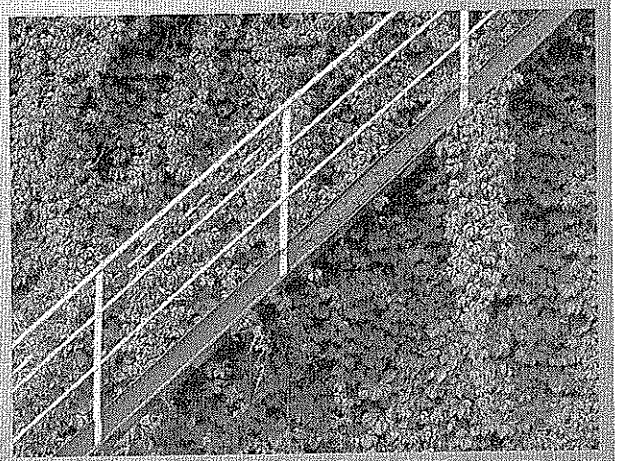
# Voluntary Sector Minimum Energy Efficiency



- ANSI/ASHRAE/IESNA Standard 90.1-2010 – Energy Standard for Buildings Except Low-Rise Residential Buildings.
- ANSI/ASHRAE Standard 90.2-2007 Energy-Efficient Design of Low-Rise Residential Buildings.
- 2012 IECC International Energy Conservation Code (Chapter 4 low-rise residential and Chapter 5 commercial).

# Voluntary Sector High Performance

- ANSI/ASHRAE/USGBC/IESNA Standard 189.1-2009 Standard the Design of High-Performance Green Buildings.

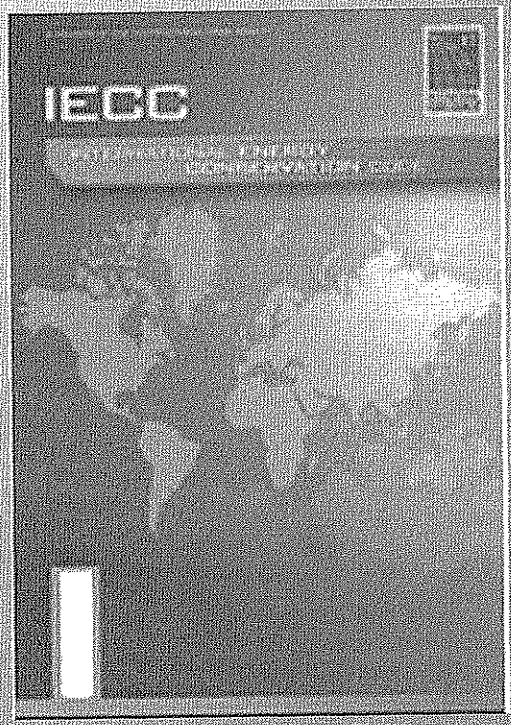


- ANSI/ASHRAE/ASHE Standard 189.2P for the Design, Construction and Operation of Sustainable High-Performance Health Care Facilities.

- IgCC International Green Conservation Code (PV2.0 - 2010).

# Support Upgrade of Energy Codes

- Residential low-rise model code goal
  - 2012 IECC: 30% more energy efficient than 2006 IECC.
  - Multi-stakeholder collaborative effort.
- Commercial model code goal
  - 2012 IECC: 30% more energy efficient than 2006 IECC.
  - Multi-stakeholder collaborative effort.

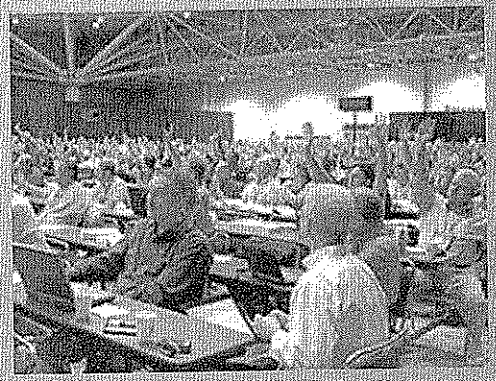


# IECC Update

INTERNATIONAL CODE COUNCIL®

People Helping People Build a Safer World™

- Code Development Hearing: **Oct 2009**
  - Results posted: **Nov 16, 2009**
  - Almost 150 proposed changes on residential
  - Almost 100 proposed changes on commercial



- Public Comments Deadline: **July 1, 2010**
- Final Action: IRC Energy and IECC: **Oct 28-Nov 1, 2010**
- 2012 IRC and IECC published: **Mid-2011**
- 2015 Code Change submission deadline: **Jan 3, 2012**

# 2012 IECC - Residential

The 2012 IECC is on the order of 30 percent[1] more stringent than the 2006 IECC for residential buildings.

Key changes during the 2010 code development cycle that will appear in the 2012 IECC for residential buildings:

- Chapter 11 of the 2012 IRC will contain a direct reference to the 2012 IECC.
- Addition of visible transmittance (VT) as a criterion for fenestration that must be determined by NFRC 200 or via a default value added to Chapter 3.
- Clarify that residential buildings covered by chapter 4 are one and two family dwellings, townhouses and multi-family residential (R-2) not over 3 stories in height above grade.

*1. Estimates of energy efficiency savings are based on models that average savings from various home types, across different climate zones*

# 2012 IECC - Residential

- Gas lighting systems cannot have continuously burning pilot lights.
- Residential lighting requirements are now mandatory regardless of compliance path chosen but all low-voltage lighting is excepted.
- The minimum number of lamps that must be high efficacy was raised from 50% to 75% of those in permanent fixtures and an optional criterion added to measure the 75% as a function of fixtures added.
- Results from required duct system testing must now be included on the required energy certificate.
- Included new provisions for an eave baffle in vented attics to minimize the impact of attic ventilation openings on attic insulation.

# 2012 IECC - Residential

- The differentiation between skylights and vertical fenestration is now based on 30 degrees from vertical instead of the current 15 degrees from vertical.
- Air barriers are no longer required in the common wall between dwelling units.
- Eliminates the requirement that air permeable insulation be inside the air barrier in the visual air barrier and insulation inspection criteria for air infiltration control.
- Log walls must now also be inspected per ICC 400 in addition to the code requirements for air barriers and insulation inspection.

# 2012 IECC - Residential

- New provisions added to regulate the minimum efficiency of mechanical ventilation system fans (range hoods, in-line fans, and bathroom/utility room fans) and a reference test standard added.
- Air handlers must now have a manufacturer's designation that indicates the maximum air leakage is 2% of the design air flow per ASHRAE Standard 193.
- Ducts, air handlers, filter boxes and building cavities used as ducts must have joints and seams pre the IMC instead of the current reference to the IRC with some exceptions in which alternative sealing methods are specified.
- Ducts and air handlers must be located within the conditioned space.
- Limitation on use of building framing cavities as supply ducts increased in scope to all ducts or plenums.

# 2012 IECC - Residential

- Duct leakage rates verified by testing reduced from 8 to 4 cfm per 100 sf at preconstruction and 6 to 4 cfm per 100 sf at rough-in.
- Current code requires R-2 on circulating hot water piping and now insulation of R-3 is required on most all hot water piping (circulating or not) depending on size, location and length of run.
- Provisions added to address how piping insulation exposed to weather is to be protected from the elements.
- Equipment sizing to be per ACCA Manual J or other approved calculation as opposed to the IRC.
- HVAC equipment must now be sized in accordance with ACCA Manual S.

# 2012 IECC - Residential

- Swimming pool provisions clarified to also apply to permanently installed in-ground spas and to have a vapor retardant cover and eliminate the current requirement for an R-12 cover if the pool can be heated to over 90˚F.
- Sets new interior shade fraction for standard and proposed designs in the building performance path to compliance.
- New provision in the building performance path to require the standard design be an air source heat pump meeting the code when the proposed design uses electric heating without a heat pump.

# 2012 IECC – Residential Envelope

- When insulation is installed in a cavity that is less than the label or design thickness of the insulation the installed R-value cannot be less than that required in the code (change from only applying to R-19 batts into 2 x 6 framing when R is reduced by >= R-1).
- Minimum ceiling insulation in CZ 2 and 3 raised from R-30 to R-38 and in CS 4 and 5 from R-38 to R-49.
- Minimum wood frame R-value in CZ3 and 4 except marine increased from R-13 to R20 or R13 + R-5 and in CZ 6 increased from R20 or R13 + R5 to R20 + R5 or R13 + R10 and in CZ 7 and 8 increased from R21 to R20 + R5 or R13 + R10.

# 2012 IECC – Residential Envelope

- R-5 value refers now to continuous insulation as well as insulated sheathing or insulated siding and if <= 40% of the sheathing is structural then R-3 can be applied over the structural sheathing instead of R-5.
- Minimum mass wall R-value in CZ3 and 4 except marine increased from R5/8 and R5/10 respectively to R8/13 and in CZ 6 from R15/19 to R15/20 (second value is when over 50% of insulation is interior to the mass wall).
- Increased minimum R-value in basement walls in CZ 5 and marine 4 from 10/13 to 15/19 (the first number is continuous insulation and the second is cavity insulation).
- Increased minimum R-value in crawl space walls in CZ 5 to 8 and marine 4 from 10/13 to 15/19.

# 2012 IECC – Residential Envelope

- Added additional details for steel framing assemblies that allow for a ready assessment of such assemblies in comparison to newly required more rigorous R-value requirements in the building thermal envelope.
- Enhanced provisions associated with air barrier and insulation inspection.
- Infiltration testing now required and must verify <= 5 ACH in CZ 1 to 3 and 3 ACH in CA 4 to 8.
- Sunrooms now must meet the insulation requirements in the code but an exception that allows some reduction in stringency if the sunroom is thermally isolated from the conditioned space in the building was added.

# 2012 IECC – Residential Fenestration

- Maximum U-factor in CZ 5 to 8 reduced from 0.35 to 0.32.
- Maximum U-factor and in CZ 2 and CZ 3 are applicable to all fenestration (impact rated modification deleted).
- Maximum U-factor for fenestration in CZs 1 to 3 reduced to 0.50, 0.40 and 0.35 respectfully.
- Maximum SHGC for glazed fenestration in CZ 1 to 3 reduced from 0.35 to 0.25 but allows skylights to be 0.30 maximum.
- Maximum U-factor for skylights reduced from 0.75 to 0.65 in CZ 2, 0.65 to 0.55 in CZ 3 and 0.60 to 0.55 in CZ 4 to 8.

# 2012 IECC – Residential Fenestration

- Maximum SHGC of 0.40 added for climate 4 except marine (previously there was no requirement).
- Sunrooms now must meet the fenestration requirements in the code but an exception that allows some reduction in stringency if the sunroom is thermally isolated from the conditioned space in the building was added.

# 2012 IECC - Commercial

The 2012 IECC is on the order of 30 percent[1] more stringent than the 2006 IECC for commercial buildings

Key changes during the 2010 code development cycle that will be in the 2012 IECC for commercial buildings:

- Included language in the code for multiple layers of sheathing so the seams of each layer are staggered.
- Storefront definition clarified to make it clear it can contain just doors, just windows or a combination of each.
- Enclosed spaces over 10,000 sf in certain building types in CZ 1 to 5 under a roof with > 15 ft ceiling height must have skylights under certain conditions and associated lighting controls.

# 2012 IECC - Commercial

- SHGC requirements for CZ 1 to 3 are 0.25 , for CZ 3 to 6 are 0.40 and CZ 7 and 8 are 0.45 with new increased adjustments from 1.1 to 1.6 depending upon projection factor and orientation of the glazing – net effect is SHGC is no greater than 2009 IECC and in some cases is a new requirement.
- The U-factor for fenestration products in a specific product category can now be area weighted and the average use to determine code compliance.
- Vestibule criteria clarified to ensure coverage of all applicable entrances and that the existence of an adjacent revolving door does not eliminate the need for the required vestibule.
- Radiant heating systems designed for heating indoor spaces must be insulated to R-3.5.

# 2012 IECC - Commercial

- Efficiency provisions added for cooling towers.
- Minimum efficiency provisions for unitary air conditioners and condensing units increased.
- Minimum efficiency provisions for gas and oil-fired boilers increased.
- Minimum insulation for supply and return air ducts and plenums in unconditioned spaces increased from R-5 to R-6.
- Minimum insulation requirements for HVAC system piping enhanced with more discrete pipe diameters and fluid temperature ranges resulting in most insulation requirements increasing over the current code.
- New provisions included to ensure protection of piping insulation that is exposed to the weather.

# 2012 IECC - Commercial

- Situations where airside economizers are required were increased in scope and an alternative path to compliance added that allows increased equipment efficiency to be substituted for the required economizer.
- Swimming pool provisions clarified to also apply to permanently installed in-ground spas and to have a vapor retardant cover and eliminate the current requirement for an R-12 cover if the pool can be heated to over 90˚F.
- Many requirements for the building envelope increased in stringency.
- Many requirements for fenestration increased in stringency.

# 2012 IECC – Commercial Major Revision

new buildings INSTITUTE

AIA

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Total Energy Savings

- 30% More efficient than 90.1-2004
- 26% More efficient than 2006 IECC

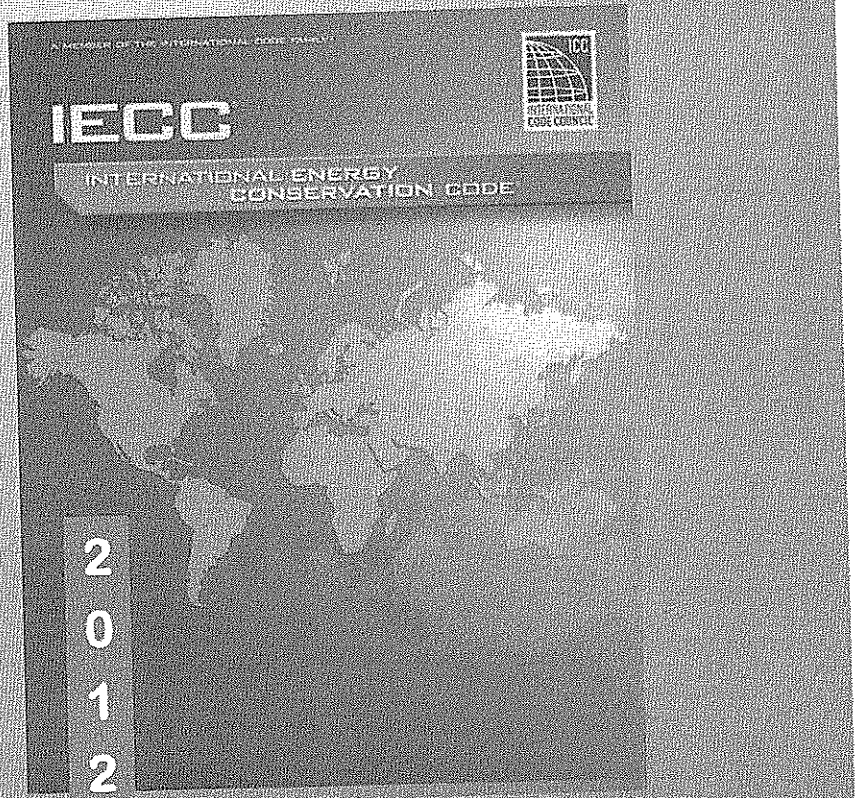
- Comply with ASHRAE 90.1-2010
- Comply with the prescriptive requirements in Chapter 5 in addition to selecting an additional efficiency feature
  - ✓ High efficiency HVAC
  - ✓ More efficient lighting system
  - ✓ Onsite renewables
- Comply with the Energy Cost Budget Approach
  - ✓ Code requires 15% improvement over reference building

# 2012 IECC – Commercial Major Revision

## Overview of collaborative revision

Comply with ASHRAE 90.1-2010

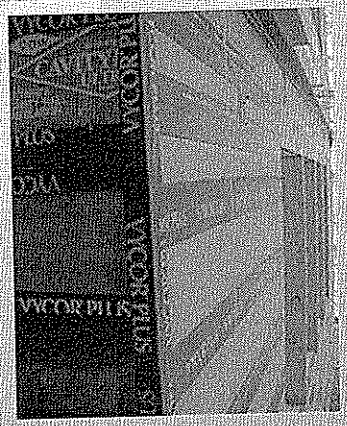
- Comply with the prescriptive requirements in Chapter 5 in addition to selecting an additional efficiency feature
  - High efficiency HVAC
  - More efficient lighting system
  - Onsite renewables
- Comply with the Energy Cost Budget Approach
  - Code requires 15% improvement over reference building



# 2012 IECC – Commercial Major Revision
# Building Thermal Envelope

## Continuous Air Barriers

- Focused on Reducing Infiltration Loads on the Building.
- Can comply with one of three options:
  - Installing the correct air barrier materials.
  - Installing the correct air barrier assemblies.
  - Testing the building to meet maximum air leakage requirements.



From NIST: http://www.wbdg.org/resources/airbarriers.php

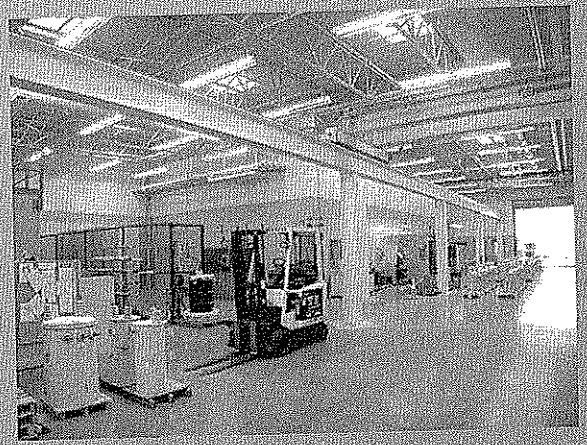
WBDG National Institute of Building Sciences

## Cool Roofs

- Required in CZ 1-3 for roofs ≤ 2:12.
- Roofs can qualify using one of four minimum roof reflectance and emittance options.

# 2012 IECC – Commercial Major Revision Fenestration

- Minimum Skylight Fenestration Area
  - For enclosed spaces greater than 10,000 $ft^2$ directly under a roof in CZ 1 to 5.
  - Total daylight zone ≥ 50% of the floor area.
  - All lighting required to be controlled by automatic multi-level lighting controls.



From Advanced Energy Design Guide for Small Warehouses and Self-Storage Buildings

# 2012 IECC – Commercial Major Revision
# HVAC Commissioning

- Applies to buildings with a total building equipment capacity ≥:
  - 480,000 Btu/h cooling capacity, or
  - 600,000 Btu/h heating capacity
- Requires:
  - Commissioning plan
  - Systems adjusting and balancing
  - Functional performance testing
    - Equipment
    - Controls
    - Economizers
  - Preliminary commissioning report
  - Construction documents and O&M Manuals
  - Final commissioning report and air balancing report

# 2012 IECC – Commercial Major Revision
## Interior Lighting Power

- Added Space-by-Space Lighting Power Density Compliance Approach
- Reduced LPD for
  - Office (10%)
  - Retail (7%)
- Reduced Retail Display Lighting Allowance
  - 1,000 Watts to 500 Watts

Interior Lighting Power Building Area Method

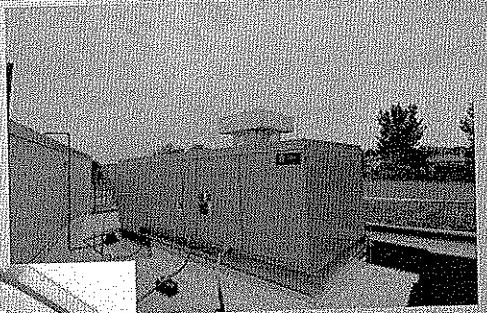
| Building Area Type | LPD (w/ft²) |
|---|---|
| AUTOMOTIVE FACILITY | 0.9 |
| CONVENTION CENTER | 1.2 |
| COURTHOUSE | 1.2 |
| DINING: BAR LOUNGE/LEISURE | 1.3 |
| DINING: CAFETERIA/FAST FOOD | 1.4 |
| DINING: FAMILY | 1.6 |
| DORMITORY | 1.0 |
| EXERCISE CENTER | 1.0 |
| FIRE STATION | 0.8 |
| GYMNASIUM | 1.1 |
| HEALTH CARE CLINIC | 1.0 |
| HOSPITAL | 1.2 |
| HOTEL | 1.0 |
| LIBRARY | 1.3 |
| MANUFACTURING FACILITY | 1.3 |
| MOTEL | 1.0 |
| MOTION PICTURE THEATER | 1.2 |
| MULTIFAMILY | 0.7 |
| MUSEUM | 1.1 |
| OFFICE | 0.9 |

INTERIOR LIGHTING POWER - SPACE-BY-SPACE TYPES

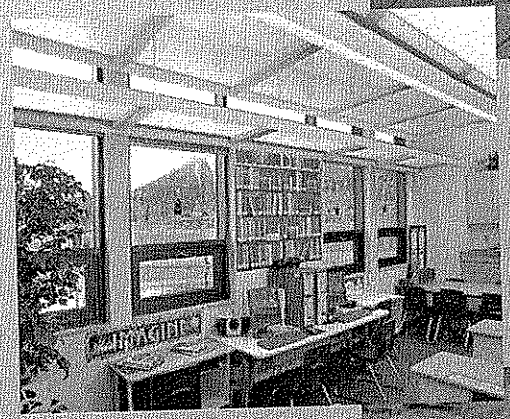
| | LPD (w/ft) |
|---|---|
| ATRIUM – First 40 ft in height | 0.03 per ft. ht. |
| ATRIUM – Above 40 ft in height | 0.02 per ft. ht. |
| Audience/Seating Area - Permanent | |
| For Auditorium | 0.9 |
| For Performing Arts Theater | 2.6 |
| For Motion Picture Theater | 1.2 |
| Classroom/Lecture/Training | 1.30 |
| Conference/Meeting/Multipurpose | 1.2 |
| Corridor/Transition | .7 |
| Dining Area | |
| Bar/Lounge /Leisure Dining | 1.40 |
| Family Dining Area | 1.40 |
| Dressing/Fitting Room Performing Arts Theater | 1.1 |
| Electrical/Mechanical | 1.10 |
| Food Preparation | 1.20 |
| Laboratory for classrooms | 1.3 |
| Laboratory for medical/industrial/research | 1.8 |
| Lobby | 1.10 |
| Lobby for Performing Arts Theater | 3.3 |
| Lobby for Motion Picture Theater | 1.0 |
| Locker Room | 0.80 |
| Lounge Recreation | 0.8 |
| Office -enclosed | 1.1 |

# 2012 IECC – Commercial Major Revisions
## Additional Efficiency Requirements

- One Additional Efficiency Feature Must Be Selected to Comply with the IECC
  - More efficient lighting system (consistent with 90.1-2010), or
  - More efficient HVAC system
  - Installation of onsite renewables
    - 3% of the regulated energy



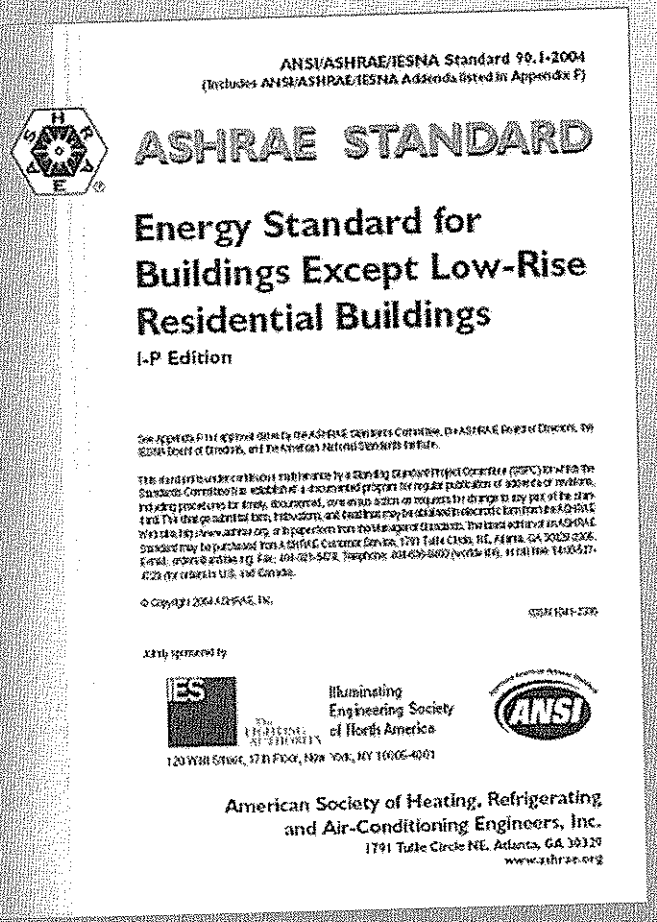
High Efficiency HVAC



More Efficient Lighting System

Onsite Renewables

# ASHRAE Standard 90.1



ANSI/ASHRAE/IESNA Standard 90.1-2004
(Includes ANSI/ASHRAE/IESNA Addenda listed in Appendix F)

ASHRAE STANDARD

**Energy Standard for Buildings Except Low-Rise Residential Buildings**

I-P Edition

See Appendix F for approval dates by the ASHRAE Standards Committee, the ASHRAE Board of Directors, the IESNA Board of Directors, and the American National Standards Institute.

This standard is under continuous maintenance by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for changes to any part of the standard. The change submittal form, instructions, and deadlines may be obtained in electronic form from the ASHRAE Web site (http://www.ashrae.org) or in paper form from the Manager of Standards. The latest edition of an ASHRAE Standard may be purchased from the ASHRAE Customer Service, 1791 Tullie Circle, NE, Atlanta, GA 30329-2305. E-mail: orders@ashrae.org. Fax: 404-321-5478. Telephone: 404-636-8400 (worldwide), or toll free 1-800-527-4723 (for orders in U.S. and Canada).



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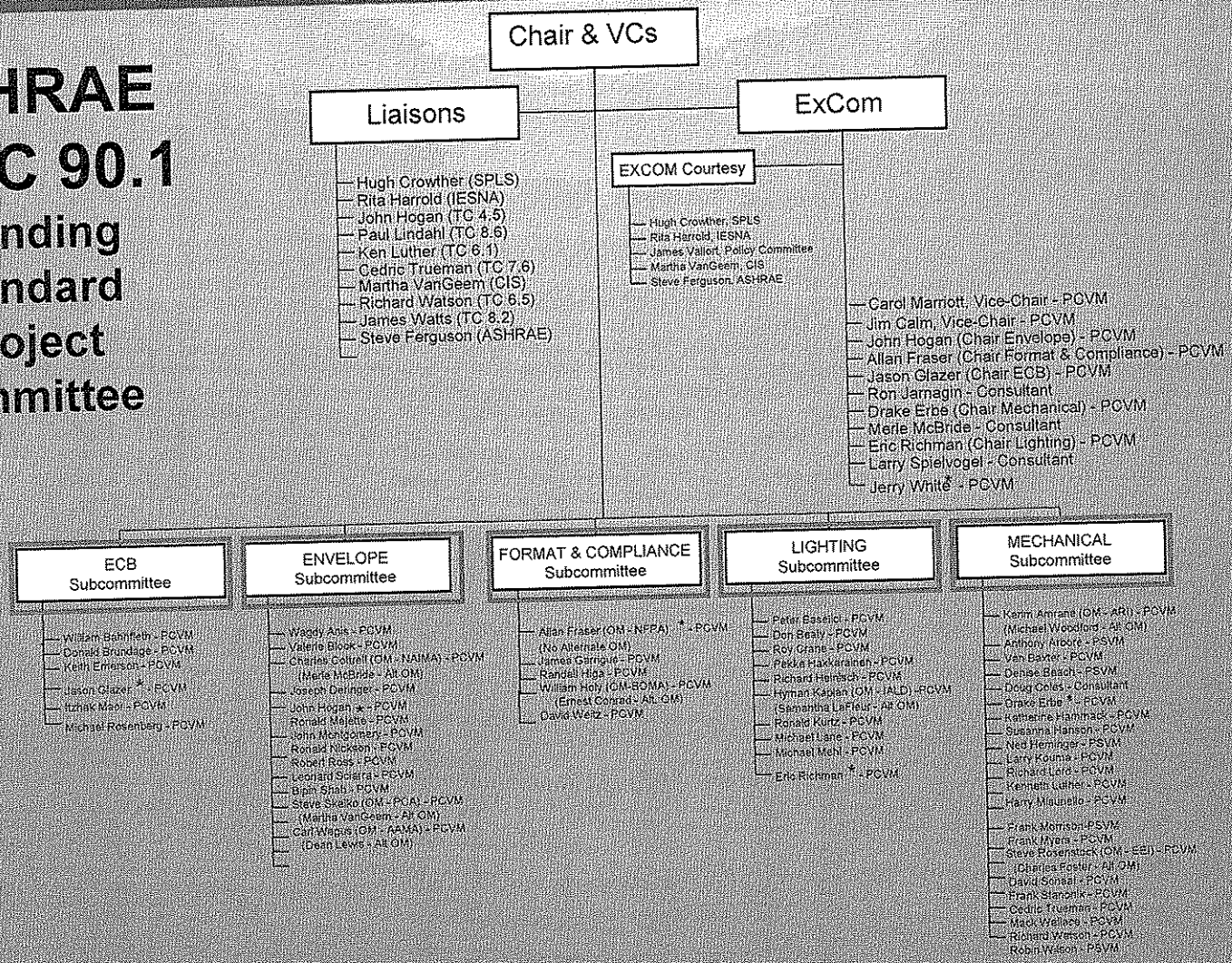
ANSI

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
1791 Tullie Circle NE, Atlanta, GA 30329
www.ashrae.org

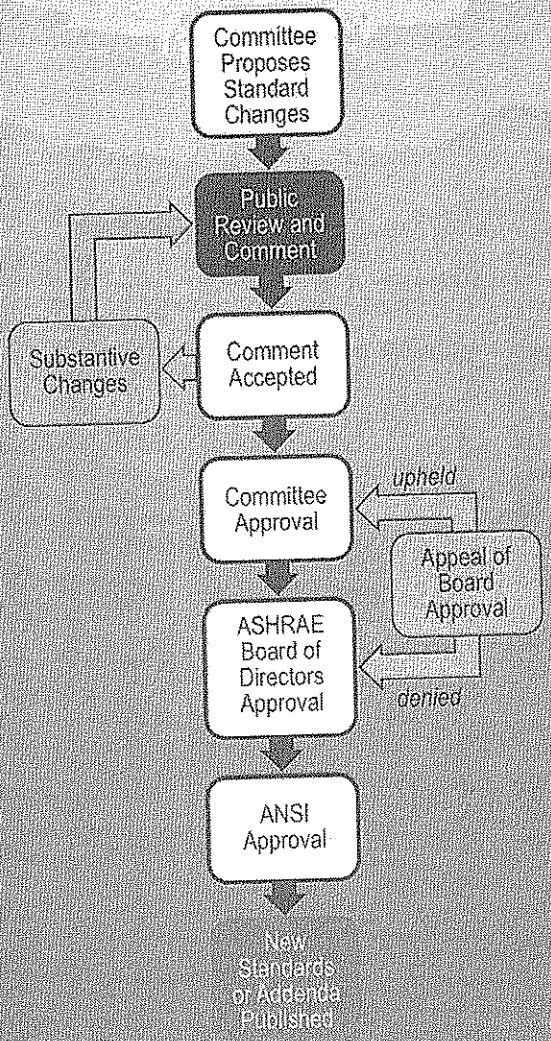
- Referenced in IECC and EPACT
- Alternative approach for commercial building energy efficiency
- Developed under ANSI approved consensus standards development process

# ASHRAE Standard 90.1

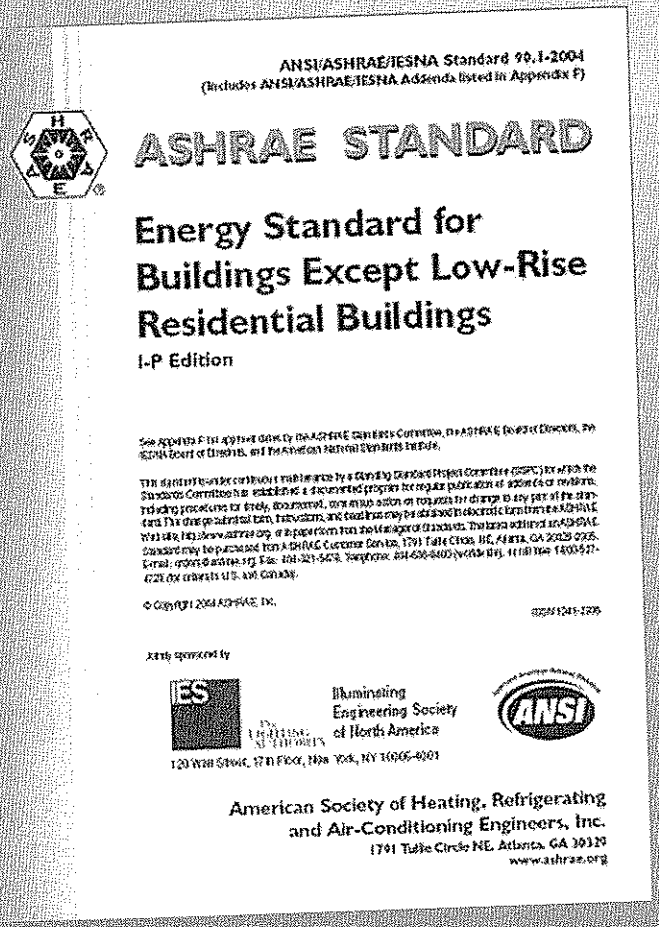
## ASHRAE SSPC 90.1 Standing Standard Project Committee



# ASHRAE Standard 90.1 Revision Process



# ASHRAE Standard 90.1



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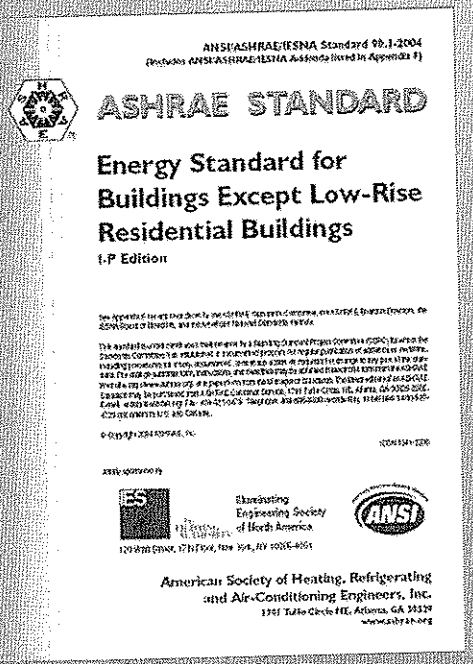
## 2007 to 2010

- 109 Addenda processed
- ASHRAE 90.1-2010 more than 20% energy efficient than 90.1-2004

# ASHRAE Standard 90.1 Revision Goals



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I-P Edition

Illuminating Engineering Society of North America

ANSI

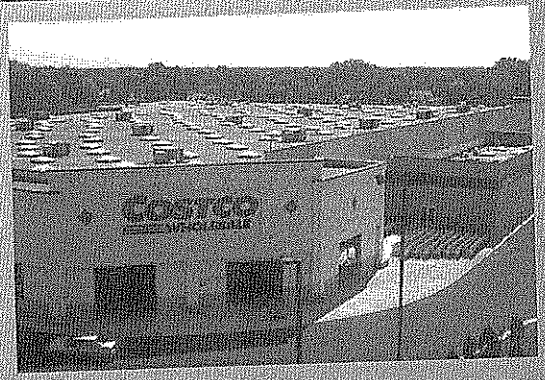
American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

- Technically justified
- Simplicity
- Flexibility
- Enforceable

# ASHRAE Standard 90.1 Accomplishments 2007 to 2010

## ENVELOPE

- Metal buildings
- Vestibules in CZ 4
- Continuous air barrier
- Skylight requirements
- Roofs, including "cool" and vegetative
- Fenestration orientation



# ASHRAE Standard 90.1 Accomplishments 2007 to 2010

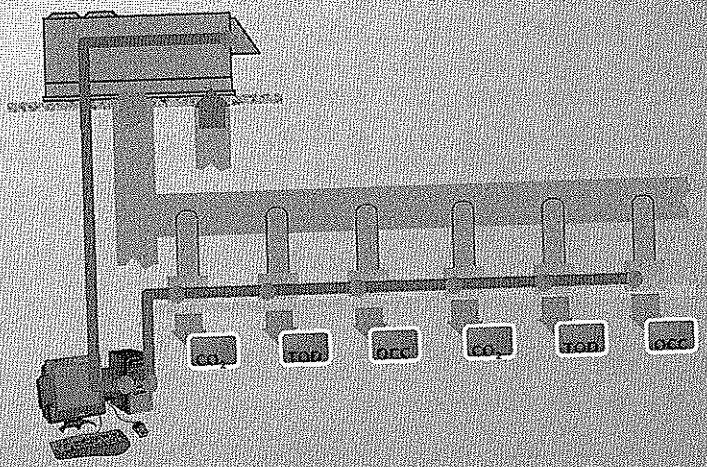
## MECHANICAL

- Chiller efficiencies, Paths A & B
- Water-to-water HP efficiency requirements
- PTAC efficiencies
- Centrifugal chillers at non-std conditions
- Extend VAV controls

# ASHRAE Standard 90.1 Accomplishments 2007 to 2010

## MECHANICAL

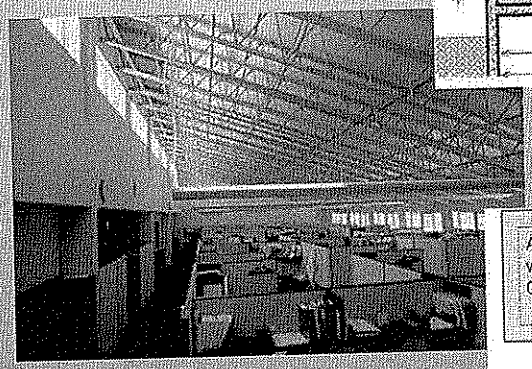
- Supply air temperature reset
- Laboratory exhaust
- Damper leakage rates
- Ventilation reset
- Revision of air-to-air energy recovery requirements

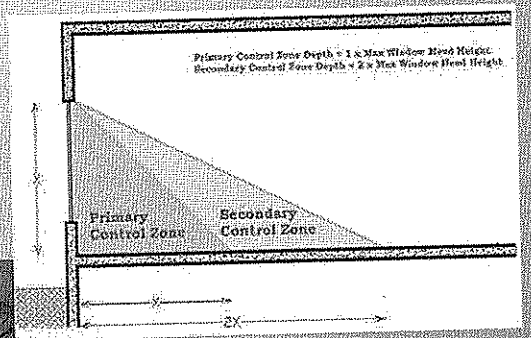


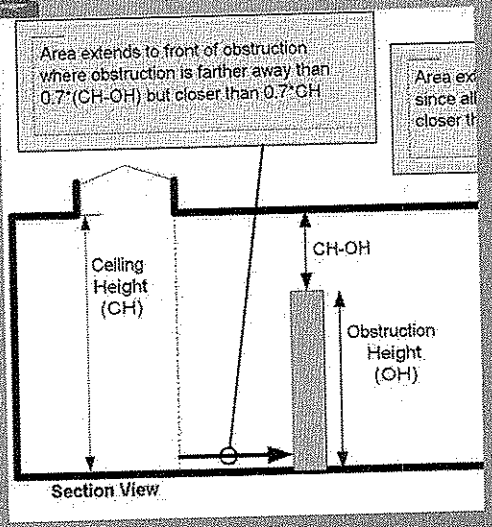
# ASHRAE Standard 90.1 Accomplishments 2007 to 2010

## LIGHTING

- Daylighting
- Skylights in large spaces
- Toplighting
- Electric motor efficiency requirements



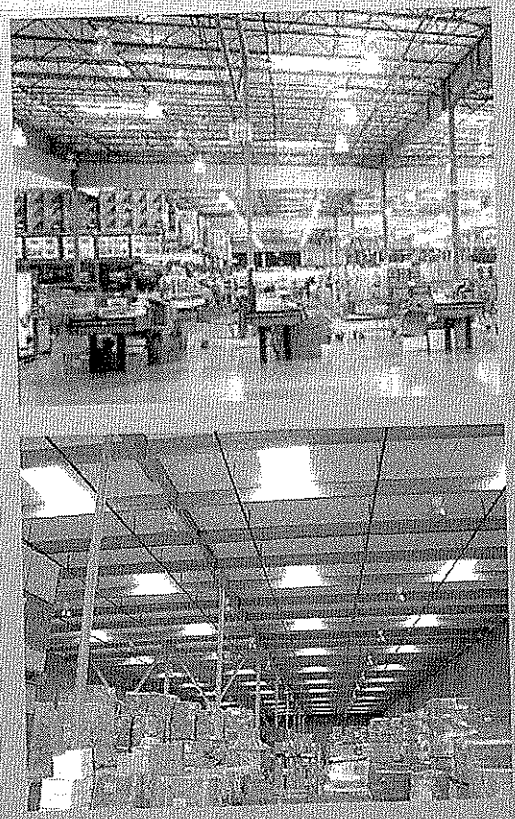


# ASHRAE Standard 90.1 Accomplishments 2007 to 2010

## LIGHTING

- Lighting controls
- LPD revisions
- Retail lighting allowance power reduction
- Receptacle load control requirements
- Dynamic glazing

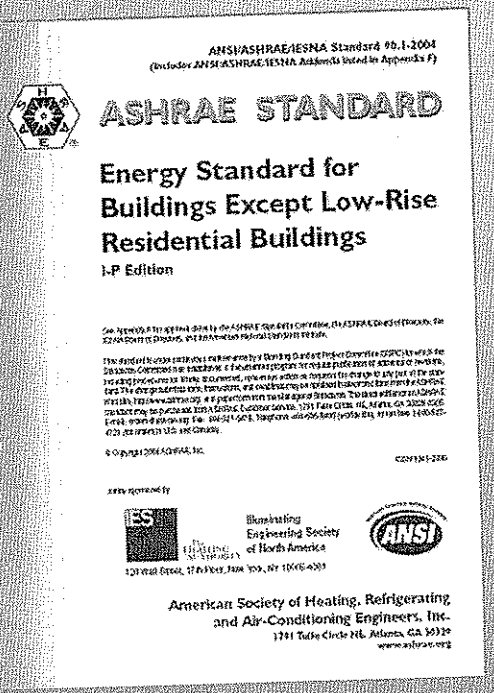


# ASHRAE Standard 90.1

## Additional SSPC Accomplishments

- 90.1-2007 publications
  - User's Manual
  - Supplement (1Q-2009) incorporates 20 addenda
- 2010 User's Manual in progress
- Interpretations
  - 29 official
  - ~31 unofficial

# 90.1-2010 – Next Steps



ANSI/ASHRAE/IESNA Standard 90.1-2004
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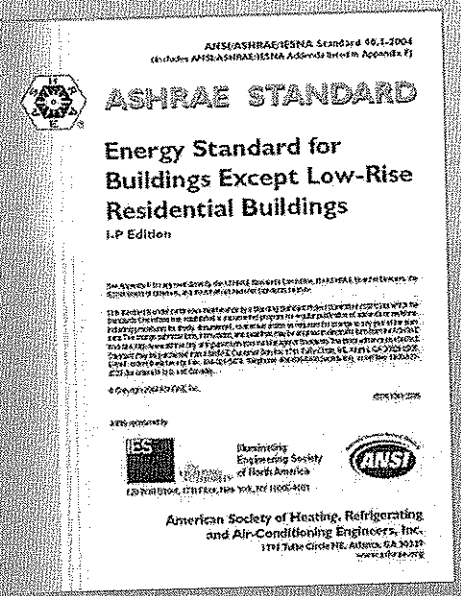
## Title, Purpose & Scope change

- Expand to new areas
  - Commercial/industrial equipment
  - Where to start
  - Identify & engage stakeholders

# 90.1-2010 – Other Options

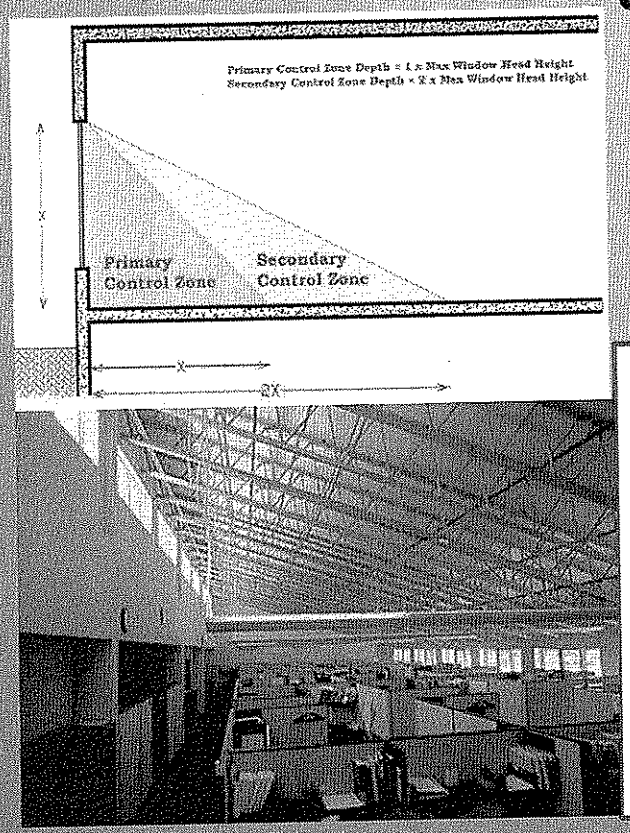



- **Holistic building designs**
- **Linked criteria**

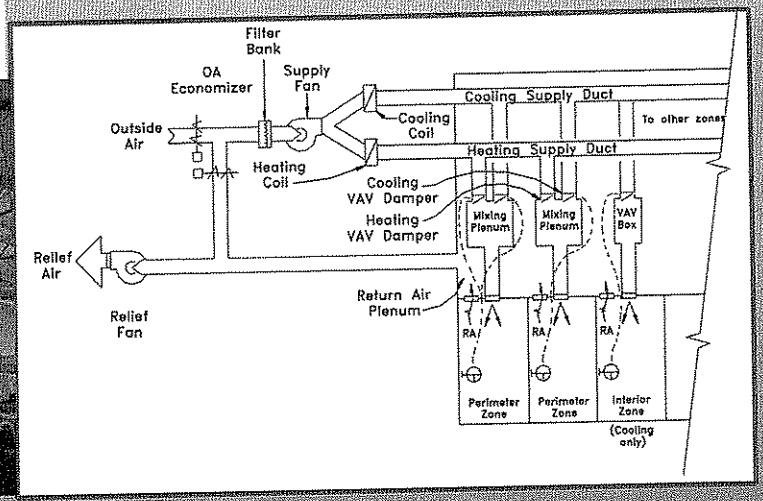
Table X Design Packages for Office Buildings in Climate Zone 3

| Package | Heating | Cooling | Wall | Roof | Fenestration | Lighting |
|---|---|---|---|---|---|---|
| 1 | HP - 6.5 | HP - 13.3 | Mass – R6 | Mass – R15 | 20% - 0.56/0.87 | 1.2 |
| 2 | HP - 6.5 | HP - 13.3 | Mass – R6 | Mass – R18 | 20% - 0.56/0.87 | 1.3 |
| 3 | Furn-81 | AC - 13.3 | Mass – R11 | Mass – R18 | 20% - 0.56/0.87 | 1.2 |
| 4 | Furn-81 | AC - 11.3 | Mass – R11 | Mass – R15 | 20% - 0.56/0.77 | 1.1 |

# 90.1-2010 – Other Options



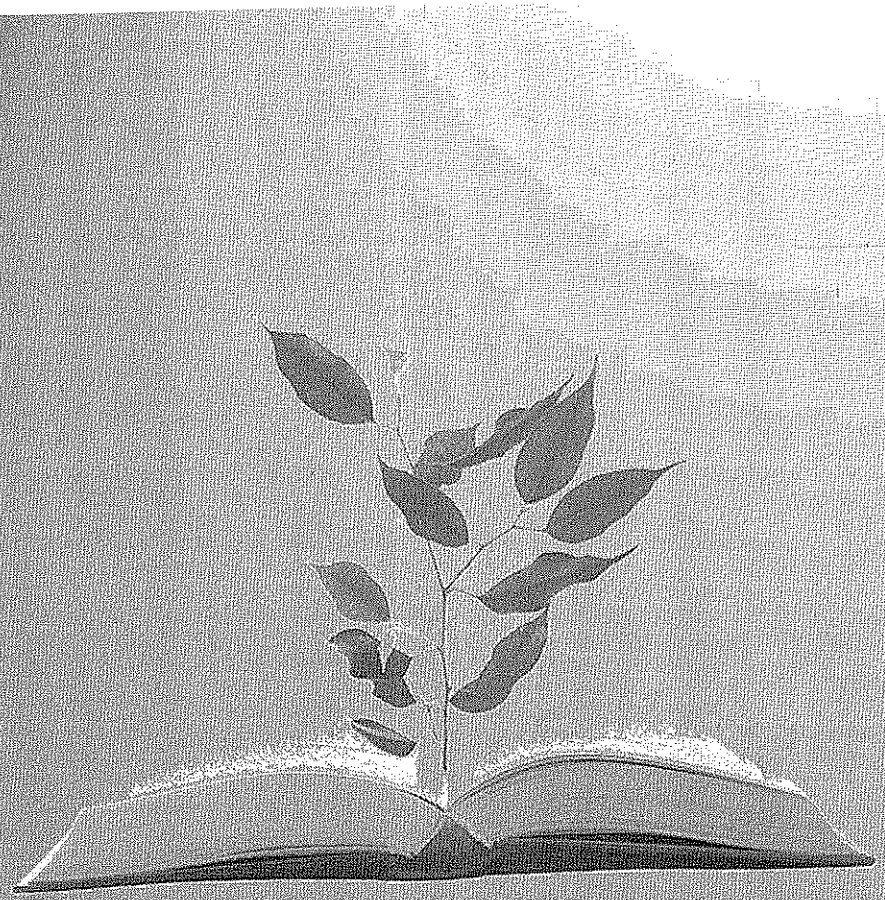

- **Holistic systems designs**
  - **Systems Design and subsystems effects**

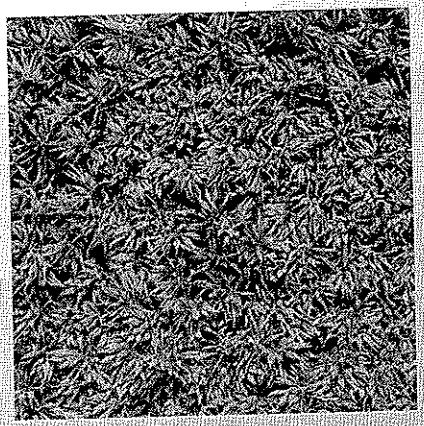


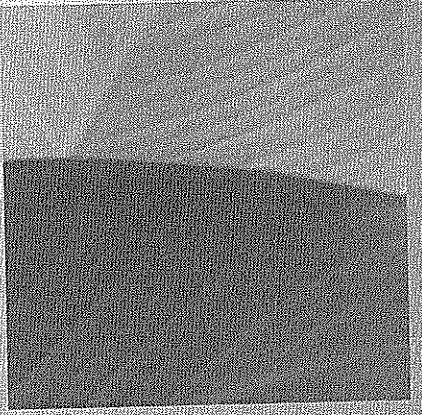
# 90.1– Moving Forward

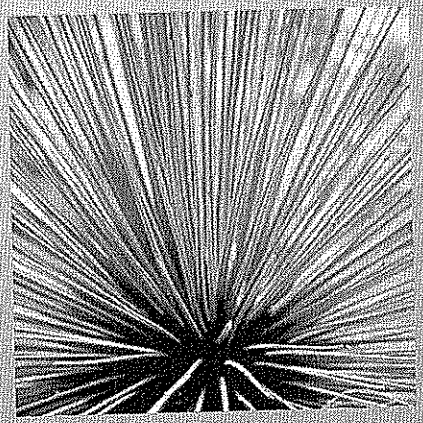
## Input Needed

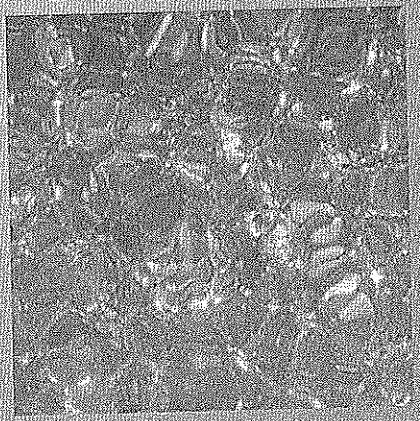
- Designers
- Equipment & Material interests
- Code Officials
- - the list goes on ..... Come join the fun!











# ICC Green Code

igcc
SAFE & SUSTAINABLE BY THE BOOK

INTERNATIONAL CODE COUNCIL

## Project Update

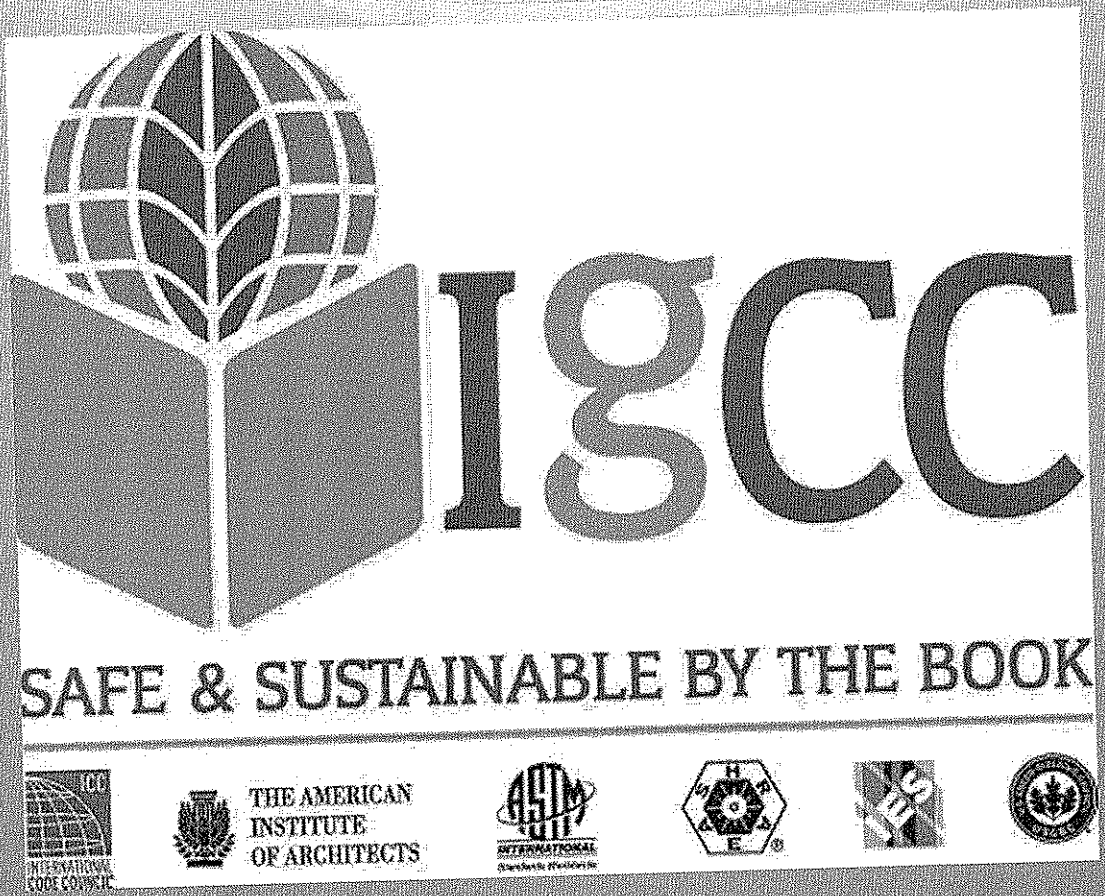
NASEO - "Building Energy Codes and Standards Development Update Webinar" - November 22, 2010

# Scope

- Commercial & High-Performance Buildings
- Integrated with I-Codes
- Option to Customize to Jurisdiction Goals
- ASHRAE/USGBC/IES Standard 189.1 included as Jurisdictional Compliance Option Tied to Building Performance

- Will apply to traditional commercial and high-performance buildings.
- Consistent and coordinated with the ICC family of Codes & Standards.
- Applicable to the construction of buildings, structures, and systems, including alterations and additions.
- Does not apply to one/two family res, or multi-family less than 3 stories.
- Will provide a new regulatory framework with customization features to allow jurisdictional options beyond IGCC baseline.
- ANSI/ASHRAE/USGBC/IES Standard 189.1 included as a "jurisdictional compliance option."
- Designed with leading recognized rating systems and standards in mind.
- Will provide criteria to measure compliance & drive green building into everyday practice.

# Our Partners

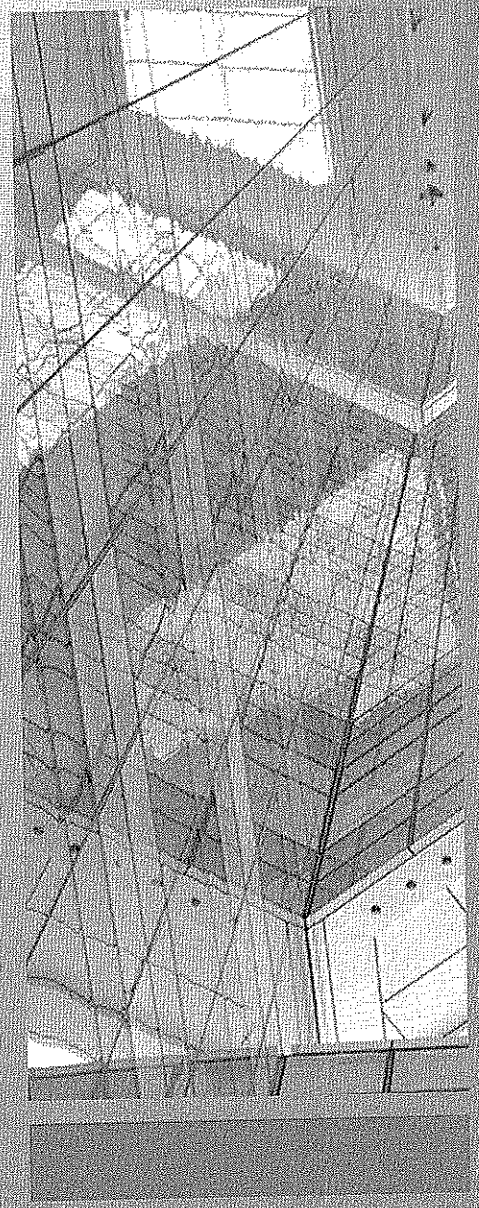


# Stages of Development

- Public Version 1.0 issued March 2010, composed of IGCC developed with AIA and ASTM International, and ANSI/ASHRAE/USGBC/IES Standard 189.1. Documents available as resource tool for short deadline jurisdictions seeking 2010 legislation. PV2 online now, until Jan. 2011.
  - Free IGCC PV2 download versions in Word and PDF on ICC website; read-only version of Standard 189.1 on ICC website.
  - Limited print versions free for jurisdictions; available for purchase via ICC online bookstore.
- First Public Comment period commenced March 15 and ended May 14, 2010;
- Public Hearings to review comments in August 2010 – Chicago.
- Public Version 2.0 to issued November 2010, for code change submitted.
- IGCC Code Change Proposals Due January 1, 2011
- Development (Dallas) May 2011 and Final Action (Phoenix) October 2011.

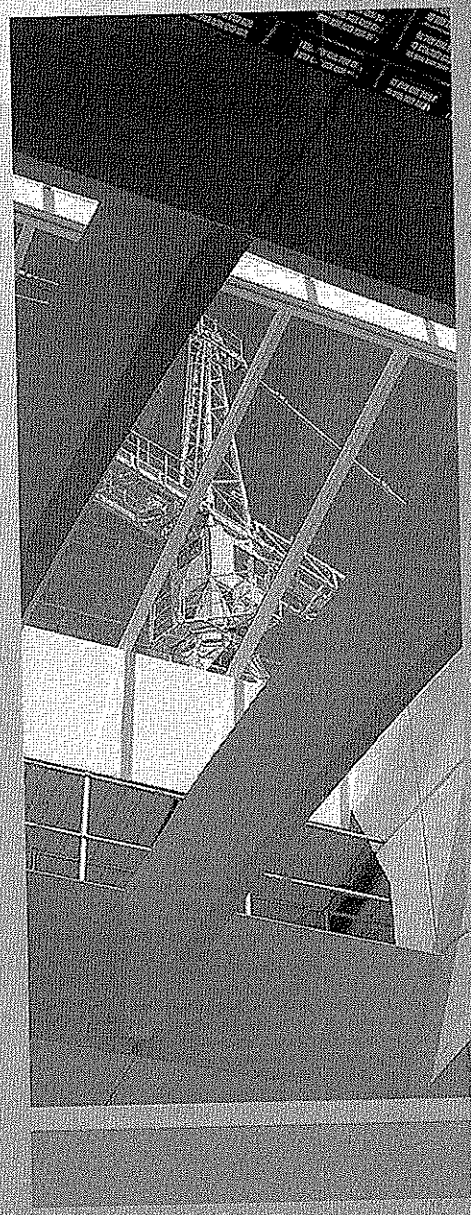
# Concepts

- Will use the "model" code approach that provides communities the ability to modify.
- Minimum & advanced levels of performance (green & high-performance buildings).
- Work as an overlay to the IBC and other ICC Codes.
- Written in mandatory language that provides a new regulatory framework.



# Concepts

- Provides both performance & prescriptive options.
- Code should account for local conditions.
- Reflect the 2030 Commitment.
- Designed with local, state & federal law in mind.

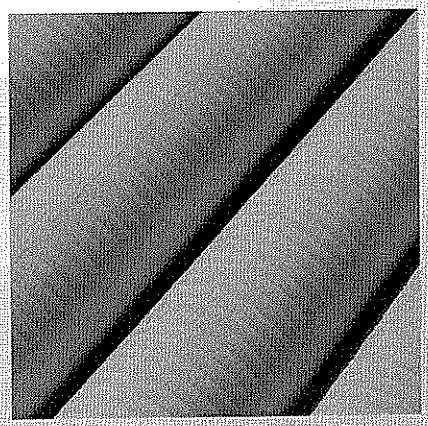
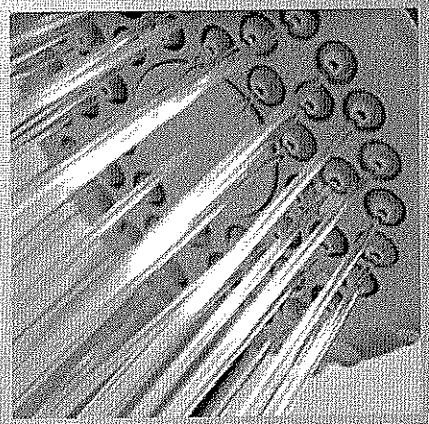


# Concepts

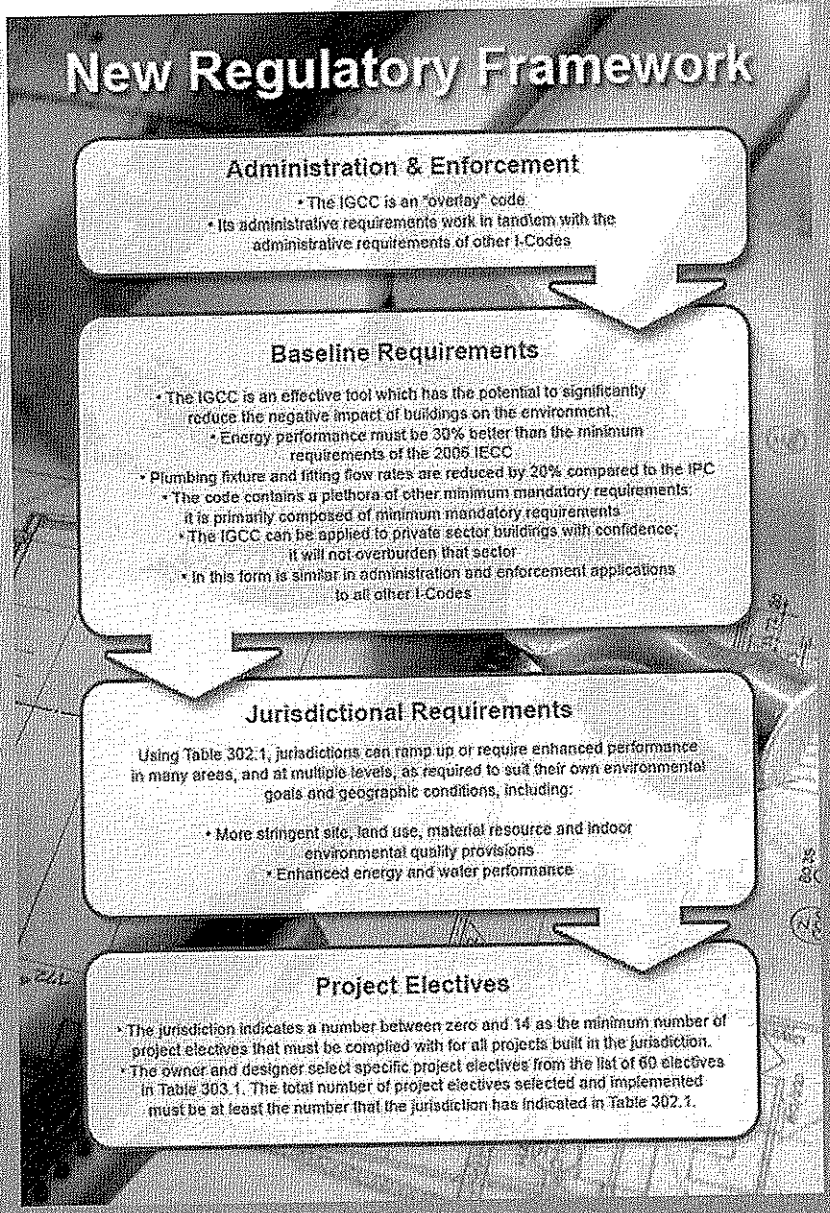
- ANSI/ASHRAE/USGBC/IES Standard 189.1 also is offered as a jurisdictional compliance option.
  - The Standard is included with the IGCC.
  - Adoption of the Standard occurs via the local jurisdiction adoption process.
- Providing the IGCC, including the189.1 option, allows the widest set of options to a jurisdiction, all under the umbrella of the IGCC.

# Chapter Topics

- Energy use conservation/efficiency (*IECC baseline*).
- Water use conservation/efficiency.
- Indoor environmental quality.
- Materials and resource conservation.
- Jurisdictional Requirements -- *customization options beyond base; includes ANSI/ASHRAE/USGBC/IES Standard 189.1.*
- Project Electives – designer choice.
- Site development & land use.
- Existing buildings & sites.
- Commissioning , Operation & Maintenance.
- Administration, Definitions, Referenced Standards.

# Framework


New Regulatory Framework
Administration & Enforcement
• The IGCC is an "overlay" code
• Its administrative requirements work in tandem with the administrative requirements of other I-Codes
Baseline Requirements
• The IGCC is an effective tool which has the potential to significantly reduce the negative impact of buildings on the environment.
• Energy performance must be 30% better than the minimum requirements of the 2006 IECC
• Plumbing fixture and fitting flow rates are reduced by 20% compared to the IPC
• The code contains a plethora of other minimum mandatory requirements; it is primarily composed of minimum mandatory requirements
• The IGCC can be applied to private sector buildings with confidence; it will not overburden that sector
• In this form is similar in administration and enforcement applications to all other I-Codes
Jurisdictional Requirements
Using Table 302.1, jurisdictions can ramp up or require enhanced performance in many areas, and at multiple levels, as required to suit their own environmental goals and geographic conditions, including:
• More stringent site, land use, material resource and indoor environmental quality provisions
• Enhanced energy and water performance
Project Electives
• The jurisdiction indicates a number between zero and 14 as the minimum number of project electives that must be complied with for all projects built in the jurisdiction.
• The owner and designer select specific project electives from the list of 60 electives in Table 303.1. The total number of project electives selected and implemented must be at least the number that the jurisdiction has indicated in Table 302.1.

# What are the most significant shifts in the way the IGCC will work?

- At the IGCC hearing just concluded, it was decided to shift most energy related requirements to "outcome" requirements, rather than prescriptive.
  - Many industry technical amendments were withdrawn following this change.
- The IGCC will address issues that go beyond building commissioning, that will require innovative approaches to compliance.
- The measurement of "energy savings" will be shifted from a backward focus (% better than previous code), to a zero energy focus, to make savings claims more meaningful

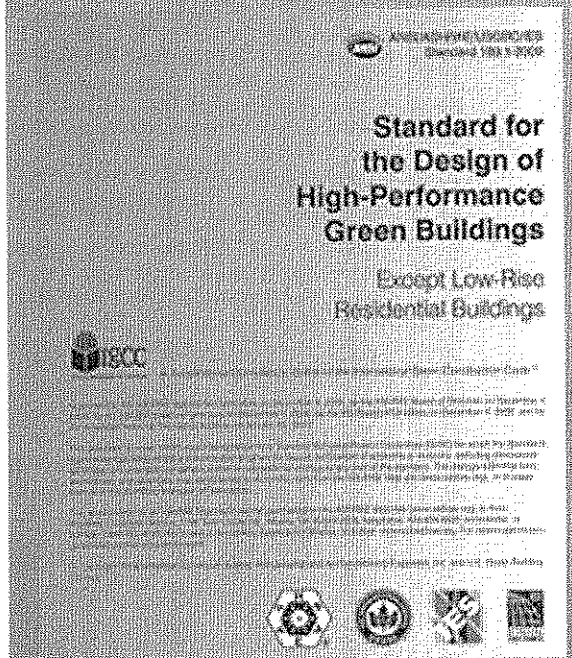
# What are the next steps?

- In November, Public Version 2 will be posted on the ICC website, available for free download.
- The Call for IGCC Committee members closed in October, will be selected by Board in December.
- Proposed changes must be filed by January 3, 2011.
- Changes may include language or provisions from ASHRAE 189.1.
- Development Hearings, May 2011, Dallas, TX and Final Hearings, October 2011, Phoenix, AZ.
- 2012 IGCC published, approximately January 2012.

For more information and updates
check the ICC website

# www.iccsafe.org/igcc

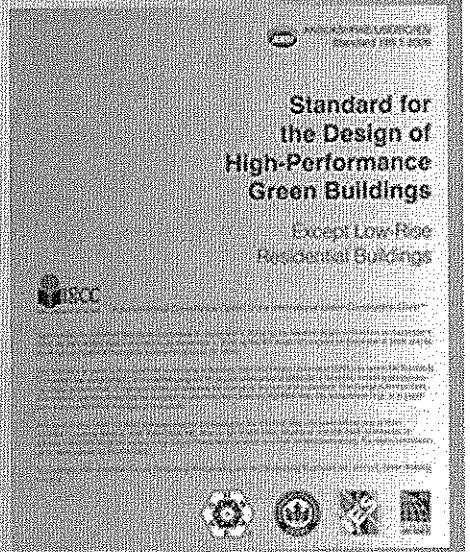
# ASHRAE 189.1 Status



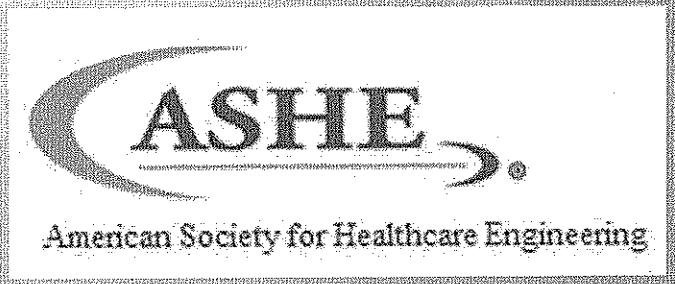

- Published.
- On continuous maintenance.
- The committee has expanded to 40 voting members.
- Six addenda have been approved for public review, 2 of which (addenda a and b) have been published.
- User's Manual, which is a companion guide has been published, and incorporates changes published in addenda a and b.

# ASHRAE 189.1 Future Plans

- The 189.1 committee is currently developing the work plan for the next version of the standard.
- Publication of the next version will be coordinated with the development schedule of the IGCC.
- The Standard will be coordinated with other documents 90.1, 62.1, 55, etc.
- The 189.1 committee will work on committee generated proposals, and any submitted continuous maintenance proposals.



# ASHRAE 189.2 Update




## Status

- Under development.

## Future Plans

- The committee hopes to have an advisory public review in the next few months.
- The goal is to have a published standard in late 2011.

# Questions and Answers

## Contact Information and Thanks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